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ORIGINAL DEPARTMENT.

LECTURES.

Lectures on Orthopædic Surgery.

Delivered at the Brooklyn Medical and Surgical Institute.

By Louis Bauer, M.D., M.R.C.S., Eng.,

Professor of Anatomy and Clinical Surgery, etc.

KNOCK-KNEE (GENU VALGAM.)

This deformity consists of an incurvation of the knee-joint, and, as the popular name indicates, brings the articulations in such close proximity as to interfere with, or knock against each other in walking. Sometimes but one extremity is thus afflicted, but often both. Such a case we have lately treated in this institution, and you will readily recognize your old acquaintance in this photograph, Fig. 32. We have acquainted you with the fact that the Ethiopian race and Jews have a hereditary disposition to this deformity. In many instances knock-knee is the superadded complication of talipes valgus, and in a fraction the deformity seems to be strictly idiopathic. The latter type occurs most frequently among lads during the period of puberty, when their growth is rapid, the leverage of their bones great, their muscular power feeble, and when they are overtaxed by lifting or carrying too great weights, more particularly on one side of the body. Hence the deformity is observed among the apprentices of lock and blacksmiths, treading the bellows with the right leg; among errand-boys of tea or grocery stores, porters, etc.

It has been suggested that the proximate cause of knock-knee depends on an arrest of development of the external condyles of both the femur and tibia, and on overgrowth of the internal ones of these bones. We are, however, of opinion that these changes in the articular faces of the knee-joint, especially in old cases,

Fig. 32.

are more the effects than the causes. For the articulation in knock-knee is rather loose and weak; it is not strictly incurvated, but both incurvated and longitudinally rotated; it is gradually superadded to pre-existing talipes valgus, and mostly remedied with that deformity It is acquired by overtaxing the joint with too heavy weights at a time when it is still weak, and in general it can be relieved by mechanical means exercising no direct influence upon the shape of the bones, excluding, of course, the rachitic species of the deformity.

A careful examination of the trouble, under a proper degree of extension and counter-extension

of the extremity, will disclose, as the direct cause of knock-knee, a marked contraction of the external duplicature of the vagina femoris inserting at the capitabum fibulæ, and occasionally a contraction of the biceps femoris muscle. We are somewhat at a loss to account for these shortenings, unless we have to recognize in them reflections from preceding inflammatory irritations of the joint by the malposition, which, indeed, we have repeatedly observed, terminating in fibrous anchylosis.

To enter upon the symptomatology of the deformity, and to qualify its impediment in locomotion, seems superfluous, since you meet cases of the kind in the streets almost every day. We have often heard the opinion expressed, that this malposition will be outgrown, or, in other words, spontaneously corrected. This is a serious error. We should lose no time in mending the deformity. In waiting, we allow the originally moderate malposition to advance to a formidable difficulty, in which gradually the articular surfaces may participate and render the case incurable.

Fig. 33.

The treatment of knock-knee presents little difficulty. Divide the duplicature of the fascia lata right above the joint, and, if necessary, divide also the tendon of the external hamstring. Allow a few days to elapse after the operation, until the wounds have healed. Then apply a well-padded splint of sheet-iron externally to the extremity, and bandage it tightly up, particularly at the knee. You may combine with the splint longitudinal extension by pulley and weight, or use weights both longitudinally and transversely. The latter treatment we employed in the last case, and you are aware of the perfect relief of the deformity, Fig. 33. Of course, you have to protect the patient against a return of his difficulty, by leather splints or plaster of Paris bandage, by invigorating lotions, passive exercise, and so forth. Above all, the patient should abstain for years to come from lifting and carrying heavy weights, and had better change his occupation.

Fig. 34.

Sometimes you may meet with most extraordinary cases of knock-knee from a very different causation. You remember the case of Francis Shaw, Fig. 34, who presented himself last year at our clinic, and upon whom we performed the exsection of the entire knee-joint, as the only feasible and practicable remedy for his deformity. His knee-joint was considerably incurvated,

and so loose as scarcely to permit its use. It was found that when eight years of age he had met with a fall, causing diastosis of the inferior epiphysis of the left femur. By the early use of the extremity, the trouble not having been recognized, the whole detached fragment with the joint turned toward the external aspect of the femur and united in that position, the axis of the joint forming, with the perpendicular of the body, an acute angle. The limb being worthless for all practical intents and purposes, and the patient having attained an age to render himself useful, and, moreover, desirous to learn a trade, he cheerfully submitted to the operation. The

Fig. 35.

result was every way satisfactory, the extremity being firm and inflexible, and therefore serviceable to walk and stand upon. Its shortening does not amount to more than two inches, Fig. 35.

To be continued.

A Doctor's Epitaph.—"In a retired cemetery in the Pyrenees," says the *Moniteur des Sciences*, "the traveler may see the grave-stone of a doctor of the district." The epitaph is of touching simplicity—

"Cinquante communes le pleurent."

COMMUNICATIONS.

The Blood—Its Condition in Pulmonary Tuberculosis.

By A. P. Dutcher, M.D.,
Of Enon Valley, Lawrence County, Pennsylvania.

PART FIRST.

The blood has been compared by some writers to a mighty river, endowed with life, impetuously rushing through every part of the body by a vast net-work of canals. In the course of three hundred and sixty-five days, these canals carry not less than three thousand pounds weight of nutritive material to the various tissues of the body, and the same amount of waste material from them. The blood is also regarded as the great center of chemical and vital actions, as wonderful as they are indispensable, soliciting our attention no less by the many problems offered to speculative ingenuity, than the important practical conclusions to which our ideas respecting them necessarily lead.

By some pathologists the blood is regarded as the chief source of all disease; hence in tracing out the cause of pulmonary tuberculosis, they find in the blood, as they suppose, a specific morbid agent, which produces all the lesions of this most fatal malady. To what extent the blood is chargeable with these injuries cannot, in the present state of our knowledge, be determined. The subject has not been investigated with that care and attention which its commanding importance deserves. The most of our systematic works contain but little on this subject that is of any practical value. That there is a marked difference in the blood of health, and in phthisis, the most superficial observer cannot have failed to remark. Let us briefly notice some of these differences.

Living healthy blood, by which we mean that which is still circulating in the living vessels, may be seen to consist of a transparent, nearly colorless liquid, which has been called liquor sanguinis; in which are numerous red and white corpuscles. On the other hand, when the blood has been drawn from the living vessels, and allowed to remain at rest, a spontaneous coagulation takes place, separating it into crassamentum and serum. The crassamentum, or clot, is composed of fibrin and corpuscles; the serum, of albumen, dissolved animal matter, and various salts. Thus we have five principal constituents

in the blood—corpuscles, fibrin, albumen, dissolved animal matter, and salts.

The following table expresses the relative proportion of each :—

	Parts.
Red and white corpuscles	127
Fibrin	3
Albumen and dissolved animal matter	72
Saline matter	8
Water	790
	1000

The *red corpuscles* are the portion of the blood on which its vivifying and calorific properties depend. They are distinct structures, living cells, or celiform nuclei, and may be seen by the microscope, when magnified about 400 diameters. In size they vary from 4029th to the 2637th part of an inch. They are somewhat flattened, and have a distinct circular outline. They are said to readily distend themselves by endosmosis with thinner fluid, and on sudden pressure being applied, and sometimes from other causes, they assume a kind of crenate form, conveying the idea that the central mass is broken up into a number of granules, pushing irregularly outward the homogeneous envelope.

The following table is compiled from Lehmann's Physiological Chemistry, vol. ii. page 131. It gives the result of an analysis of the solid red corpuscles. One thousand parts are composed of—

Water	688·00
Solid remains	312·00
	1000·00
Specific weight	1·0885
Hæmatin and its iron	16·75
Globules and cell membranes	282·22
Fat	2·31
Extractive matter	2·60
Mineral substances	8·12
Chlorine	1·686
Sulphuric acid	0·066
Phosphoric acid	1·134
Potassium	3·328
Sodium	1·052
Oxygen	0·667
Phosphate of lime	0·114
Phosphate of magnesia	0·073
	1000·000

By looking over the above table, you will discover that hæmatin constitutes an important chemical element of the red corpuscles. The chief chemical constituent of hæmatin is iron. Liebig looks upon this iron as the real agent by means of which oxygen is carried through the circulation and brought to act on the various tissues of the body. He supposes that if iron, in its original state, be the proto-oxide, it may become the peroxide by uniting with an additional atom of oxygen, or the proto-carbonate by the addition of an atom of carbonic acid.

The first change he supposes to take place in the lungs, to which the blood comes charged with carbonic acid; the carbonic acid is given up by the iron and replaced by an equivalent of oxygen taken in from the air; while in the systemic capillaries the second change is accomplished. Here the oxygen being imparted to the tissues, and being replaced by carbonic acid, which is given up by them to be conveyed out of the system, Liebig also maintains that there is far more than sufficient iron in the whole mass of the blood to convey, in this manner, all the oxygen and carbonic acid which are interchanged between the pulmonary and systemic capillaries.

This is a very ingenious and beautiful theory to account for the use of the red corpuscles, but, like very many others, it cannot yet be received as a physiological fact. It needs demonstration. But how are we to arrive at a definite conclusion as to their use? A brief glance at a few facts in comparative physiology will, perhaps, solve the problem. The existence of the red corpuscles in the blood is confined almost exclusively to the vertebrated class; the corpuscles which we find in the blood of the invertebrated are mostly white, and are very similar to those we are presently to describe. Among the lower invertebrated the red corpuscles are entirely wanting, and the same has been discovered to be the case with the embryos of some of the highest animals at a very early period of their development.

From these facts, it may reasonably be inferred that the red corpuscles are not necessary to the production of the organizable elements of the blood. This being the case, we must look to some other department of the organization for their use. No intelligent physiologist will deny that they undergo very important changes in the systemic capillaries, their color being changed from purple to red in the former, and from red to purple in the latter; the conclusion is obvious that they have, as their principal office, the introduction of oxygen into the blood that circulates through the systemic capillaries, and the removal of the carbonic acid set free there, serving, in fact, as the medium for bringing the

tissues in relation with the air, the influence of which is necessary for the maintenance of their vital activity.

In pulmonary tuberculosis the red corpuscles are very deficient. They have been known to fall as low as 60 in 1000 parts; this was in the last stage of the disease. In most instances they will not fall much below 70 in 1000. The consequences of such a want of one of the most important constituents of the blood cannot fail to be attended with very injurious effects upon the whole system. All the tissues of the body must suffer more or less from the want of oxygen, and the retention of noxious elements in the circulating medium, which are a positive hinderance to their health. And may not this deficiency of the red corpuscles assist in a great measure, and lead directly to the formation of that cachexia which constitutes such a marked feature of pulmonary tuberculosis? In chlorosis we find a direct clew to the blanched appearance of the skin in the notable want of red corpuscles in the blood. Rectify any local organ that may be at fault, furnish the blood-making organs with suitable materials for elaborating red corpuscles, and the rosy hue of health will once more bloom upon the cheek—elasticity and strength characterize every movement. In phthisis we cannot often look for this. We may, alas! supply the materials for making them, but in addition to the blood malady we have a local complication—a fearful mutation in the lungs, which is not amenable to treatment. The reciprocal action between the lungs and blood is gone, and no effort on our part can entirely restore the red corpuscles to their natural standard. Any approximation to such a result may be looked upon as a favorable omen. Iron, quinia, and cod-liver oil have a positive influence in this direction. Hence in all cases of phthisis that fall under our care, with but very few exceptions, we employ these medical agents, ad libitum, with the most implicit confidence that, in the present state of our knowledge on this subject, they are the very best that we have. When we fail with them we may consider the fate of our patient as sealed, and we shall fall very far short of our duty if we do not direct him to fix his hopes above, where pain and death can never come.

PART SECOND.

The *white corpuscles* are much larger than the red. Under the microscope they appear to be round vesicles, containing a number of excessively minute particles imbedded in a gelatinous substance. Their general appearance is, however, by no means uniform; they vary much in size and form. The cause of this has been traced to their different degrees of development, for it has been definitely settled, by the researches of modern physiologists, that the white corpuscles originate in the plasma of the blood, and that in the first stage of their existence they are granular, and that these granules are ultimately developed in perfect cell-structures.

When examined in their early condition, the cell-membrane can scarcely be distinguished from the large nucleus to which it is attached, unless the cell be distended with water, which will show the nucleus to be in a soft, granular, tuberculated state, disposed to break up readily into two or more fragments. In the latter stage, of those at least which do not go on to full development, we find the nucleus apparently dispersed into numerous isolated particles, which give the cell a somewhat granular appearance, and these particles may be seen in molecular movements within the cell, and in some instances they are so marked as forcibly to remind one of the contractions and expansions of that very minute microscopic animalcule *amœba*, probably the simplest of all organic beings.

The white corpuscles are not very numerous in healthy blood, and this may be readily accounted for, if we admit, what is claimed for them by some physiologists, that they are the early stage of the red corpuscles. Dr. Draper, in his excellent work on Human Physiology, maintains this view, with great ingenuity and power. He says:—

"That there are three periods in the history of blood-cells. Those of the first period originate simultaneously with, or even previously to, the heart—these are the embryonal cells, which are colorless and nucleated. These become liquid internally, are developed into cells of the second period, which are red, nucleated, and oval, like the normal cells of reptiles. The class of the third period replace these, the transition being closely connected with the production of lymph and chyle corpuscles. This change takes place at the close of the second month of fœtal life, and from henceforward no change is observable; the cells continue to be red, bi-concave, non-nucleated, and circular. The cells of the first period is, therefore, spherical, and nucleated; that of the second, red, disk-shaped, and nucleated; that of the third, red, disk-shaped, bi-concave, and non-nucleated. The primordial cell advances to development in different orders of

living beings. The blood of invertebrated animals contains coarse granule-cells, which pass forward to the condition of fine granule-cells, and reach the utmost perfection they are there to attain in the colorless nucleated cell of the first period of man. In oviparous, vertebrated animals the development is carried a step further, the red nucleated cells arising, and in them it stops at this, the second period. In mammalia, the third stage is reached in the red, non-nucleated cell, which is, therefore, the most perfect form."*

But this use of the white corpuscles is denied by some other writers. They consider them to be the chief agents in the formation of fibrin, which they are said to elaborate out of the albumen, imparting to it its peculiar coagulating and so-called plastic properties. Dr. Carpenter is a strenuous advocate of this opinion, and has discussed it quite extensively in his Human Physiology. After alluding to some experiments of Drs. Addison and Williams, as well as some of his own, to prove the connection between the generation of white corpuscles in the blood and the production of fibrin, he says:—

"These facts, therefore, afford strong grounds for the belief that the production of fibrin in the blood is closely connected with the development of the colorless corpuscles, and when we consider them in connection with the facts previously urged, there scarcely appears to be a reasonable doubt that the elaboration of fibrin is a consequence of this form of cell-life, and is, in fact, one of its express objects. The fact that in the invertebrated the colorless corpuscle never undergoes that high state of development which consists in its conversion into the red, and that in inflammation we have the proportion of the colorless corpuscles to red augmented (in man) from about 1 : 50 to 1 : 10, without any consequent augmentation of the red corpuscles—sufficiently proves that there is some other termination of the existence of the colorless corpuscles than their development into red; and it seems probable that a considerable portion of them rupture or deliquesce, so as to yield up their fibrinous contents without undergoing that further change."†

We cannot see very much force in this reasoning of Dr. Carpenter, for the very same arguments have been employed by others to prove that the red corpuscles are the principal agents in the elaboration of fibrin; we, therefore, ignore the views advanced on this subject by Dr. Carpenter, and fully indorse those of Dr. Draper. In phthisis their quantity is usually increased. This, in our opinion, is owing to the fact that, for some reason, they are not furnished with hæmatin as rapidly in this disease as they are in health; hence, while there is a deficiency of red corpuscles, there is an increase of white. The administration of restorative hæmetics will diminish their number, and sometimes produce an augmentation of the red in phthisis. We should not, however, forget to observe that the white corpuscles are more numerous in the blood of children than adults. Women, when in their ordinary condition, have fewer of either kind than men, but during pregnancy their quantity is increased.

* Draper's Human Physiology, p. 115.
† Carpenter's Human Physiology, p. 129.

PART THIRD.

The *fibrin* is one of the most important parts of the blood, the most universally diffused of the animal system, the most necessary for the supply and growth of all its tissues. It may be easily seen, by submitting a clot to repeated ablutions in water, when the red corpuscles will be entirely separated, leaving nothing but the clean white fibrin. In this condition it possesses the softness and elasticity which characterize the flesh of animals, and contains about three-fourths of its weight of water. Under the microscope it exhibits fibres, cells, and granules.

It has been universally believed by physiologists that the coagulation of the blood was principally owing to the solidification of the liquid fibrin. But it has been fully demonstrated by M. Bernard that blood entirely deprived of its fibrin will coagulate. He whipped out all the fibrin from some blood, and found that when it was even impossible to get any more, the blood subsequently coagulated. He found, moreover, that the blood of the veins from the kidneys contained no fibrin, yet it coagulated. While it is perfectly evident that the blood will coagulate without fibrin, it is equally well known that it will sometimes not coagulate when fibrin is present, even in excess.

Dr. Richardson has clearly proven this in his interesting essay on the Causes of the Coagulation of the Blood. On page 34 we find the following remarks touching this subject:—

"Morgagni had described the blood as quite fluid after death in only four cases; all these were cases in which death ensued from slow arrest of the respiration. Three American physicians, Drs. Peters, Goldsmith, and Moses, have published a report on the appearance of the blood in twenty cases of death resulting from the excessive use of ardent spirits. In every case the blood was fluid and dark, was of a cherry-juice appearance, and showed no tendency to

coagulate. In death from narcotic poisoning, from delirium tremens, typhoid fever, and yellow fever, the blood is generally described as thin and uncoagulable. Dr. John Davy found the blood fluid and uncoagulable on exposure in cases of drowning, hanging, suffocation from the fumes of charcoal, and effusion of blood into the pulmonary air-cells."

In all marked cases of pulmonary tuberculosis that have fallen under my notice, wherein I have examined the blood, it exhibits little or no tendency to form a consistent clot, although the fibrin was most always in excess. This, I suppose, can be accounted for upon the supposition that the fibrin in this disease has degenerated, and lost some of its healthy constituents, which are the principal agents in forming a firm clot. In consequence of this degeneration in the quality of the fibrin, some writers have looked upon it as the chief source from which tubercles are eliminated. But this is exceedingly hypothetical, for we find the same degeneration of fibrin in other diseases, such as typhoid fever, diabetes, carcinoma, and erysipelas. In all these diseases the fibrin undergoes a great change, and is quite unfit for supplying the tissues with the appropriate materials for their growth and maintenance.

PART FOURTH.

Albumen is the principal constituent of the serum. It is generally believed to be chiefly useful in affording the materials from which fibrin is elaborated. It is also further useful in giving to the serum a consistency favorable for its circulation; for suspending and preserving the corpuscles from injury, and in blandly sheathing the acrimony of the saline constituents. It was for a long time supposed that there was little or no difference between albumen and fibrin in their relation to the living organized tissues; but it has recently been clearly demonstrated that there is a very important difference. It is a well-known fact that albumen has no tendency to coagulate, excepting under the influence of agents which are purely chemical; and when thus coagulated it is entirely destitute of structure, being simply a homogeneous aggregation of particles; while, on the other hand, fibrin manifests a uniform tendency to pass into the form of solid tissues; and it seems restrained only from doing so by certain influences the nature of which we do not as yet understand.

The conversion of albumen into fibrin may be said to be the first step in the process of nutrition, by which the materials supplied by the food are made to form part of the living tissues of the body; and it is the one to which some writers have very appropriately applied the term *assimilation*. This process is very incomplete in phthisis, and constitutes one of its most distinguishing features. Faulty assimilation, in our humble opinion, is the very first step in all those local lesions which occur in pulmonary tuberculosis; the manner in which this occurs will be described hereafter. In phthisis, this portion of the blood is commonly increased. In some instances it has been found as high as 100 parts in 1000. Like fibrin it is depraved in quality, and sinks far below the standard of normal vitality.

Of the *dissolved animal matter* contained in the blood, one portion seems to correspond with the constituents of ordinary fat; while another contains phosphorus, and seems allied to the fatty acid of nervous matter. They are evidently derived from the food, either directly or by the transformation of its farinaceous ingredients; and they are chiefly appropriated to the maintenance of the combustive process. In the disease which we are contemplating, these particles are found somewhat in excess. From some experiments of Simon, he found the healthy standard of fat in the blood to be 2·346, while in some cases of phthisis it ranged as high as 4·231. Other experimenters have made out a fractional decrease; but I think there can be no doubt of the increase of fatty matter in the blood of patients affected with tuberculosis; this, I think, is clearly made out from a tendency to the accumulation of fat in particular organs, especially the liver.

The *saline matters* of the blood usually amount to between seven and eight parts in 1000. More than half their total quantity is composed of chloride of sodium and potassium; and the remainder is made up of the phosphate of lime, the phosphate of soda, sulphate of soda, and a fraction of phosphate and oxide of iron. The use of the saline matter is in part to supply the minerals required for the generation of the tissues, and the production of the various secretions. As to the condition of these elements of the blood in phthisis, we have no positive knowledge; but we may infer that they are decreased, from the fact that its specific gravity is somewhat diminished, and its watery particles increased.

General conclusions.—From what we have now written, we make the following deductions:

1. In phthisis there is a decrease of the red corpuscles, and a slight excess of the white.

2. That there is an increase of fibrin, and a deficiency in its normal vitality.

3. That albumen is in excess as to amount, but depraved in quality and unfit for the elaboration of healthy fibrin.

4. An increase of dissolved animal matter.

5. A diminution of saline matter.

6. A reduction of its specific gravity.

7. An increase of its watery particles.

PART FIFTH.

We have dwelt thus particularly upon the condition of the blood, because we have for several years been in the habit of looking to it as the chief source from which, in a great measure, all those perverted actions and local lesions arise which manifest themselves in pulmonary tuberculosis. Let pathologists reason as they will in regard to the origin of tubercle, they cannot close their eyes to the fact that there are certain morbid changes in the blood in this malady which render it unfit for healthy nutrition; and that when thus affected, it leads to the elimination of tubercle in the lungs or some minor organ; and that when thus deposited, it is not capable of being assimilated into the texture of the organs; and if not absorbed, it soon or later produces their dissolution and all its attendant phenomena.

This theory of the origin of tuberculosis has been so beautifully set forth by Dr. Edward Warren, in his "Fisk Fund Prize Essay,"* that I cannot resist the temptation of reproducing it for the benefit of those of my readers who may not have this excellent essay in their possession. I will not follow the doctor in his precise language, nor the exact order in which he proceeds to develop his theory of tuberculosis; for that would extend this article far beyond the space contemplated in the original plan.

In order to understand the whole process of tubercular disease, it must be considered in connection with the various manifestations displayed in the process which originates organized tissues. It is a conceded doctrine with modern physiologists that the primitive structure of all the tissues of the human body is composed of minute cell-formations and cell-germs; and these cells are capable of reproduction so long as they are supplied with blood that is appropriate for their formation. When, therefore, all the organic functions are perfectly performed, and the body is in a normal state, there is always a continual disintegration and reproduction of cell-structure. Thus, while on the one hand there is a process continually going on in the body which destroys, there is another which builds up and repairs.

So long, therefore, as these two processes are thoroughly maintained, there will be health in all the various tissues of the body. Nothing can interrupt it but a material diminution of the original cell supply, which depends upon a normal performance of the functions of nutrition. Hence we trace all the primary forms assumed in the process of developing solid animal tissues to the blood, thereby assuming for the circulating fluid a power of such great importance that without it all the vital changes must cease.

"The necessity for this right and appropriate state of the blood, as a condition of healthy nutrition, involves, of course, the necessity for the due performance of the blood-making and the blood-purifying functions; it requires healthy digestion, healthy respiration, and healthy excretion. Any of these being disturbed, the formative process, in a part or in the whole body, may be faulty for the want of appropriate materials."*

Now, in pulmonary tuberculosis it has been clearly demonstrated that from a failure in some of the blood-making or blood purifying organs the blood loses its normal constituents. The beautiful harmony and perfect relation which existed between it and the tissues have departed. The rich materials formerly abounding in it are no longer to be found; the cell-germ, which, in a healthy state, was conveyed to the remotest tissues and deposited as the nucleus of a plastic structure, has been replaced by one of the lowest and most degenerated elements ever formed in the body; not capable of the least organization, nor contributing in any way to the nutrition of the parts in which it is deposited; but, on the contrary, is disorganizing in its nature and tendency.

It is a fact which cannot be denied that, in this instance, the healthy process of nutrition has undergone a perfect change; the plasticity of the blood has degenerated into dyscrasia, and the plastic forces, instead of their compliance with the laws of normal organization, are now subject to a great deviation. If we reflect how injurious

* See American Journal of the Medical Sciences, July No., 1857, p. 87.

* Paget's Surgical Pathology, p. 27.

to the organs of the body must be the effect exerted through the blood thus degenerated—if not also positively vitiated—carrying to all the tissues of the body materials of a very destructive character, we may easily understand why it proves so injurious to the lungs, or it may be a minor vital organ.

In this way the system sustains not only a negative injury in the arrest of plastic forces, in consequence of the notable deficiency of organizable constituents, but a positive evil resulting from noxious elements present, demanding their speedy exit; and the organs evincing the greatest proclivity to participate in the progressing decay, become a receptacle for the depraved product. And observation has verified the fact that the lungs are the organs most frequently selected, particularly in the adult, for the purpose of eliminating this offending matter from the organism.

Now, if we contemplate for a moment how vitally dependent upon the integrity of the pulmonary functions is the adequate preparation of the blood for the use which it is destined to serve in the system, we at once have a direct clew to the series of perverted actions and torpid functions made manifest. The abnormal elements which give rise to the blood dyscrasia, finding efficient scavengers in the lungs, the vitalizing functions of these organs become impaired in consequence of the impediment offered to the respiration by the accumulation of tuberculous deposits, which, still further depraving the quality of the blood, accelerate the formation of morbid matter, thereby increasing the burden of the lungs, and thus becoming cause and effect, until the elaborating process is paralyzed and nutrition permanently arrested.

If we admit this theory of the formation of tubercular deposits, we may readily explain why it is that the lungs are the most liable of all the organs of the body to tubercular disease. They are the chief organs of hæmatosis, and anything tending to check the purification, and arrest the circulation of the blood, will induce an elimination of the morbid product. Hence the apices, from being inclosed in a less yielding part of the chest, mechanically favor the effusion more than the lower lobes.

This theory also accounts very clearly for the tubercular diathesis, so much debated by medical writers on phthisis. The peculiar habit of body, distinguished by this term, is that state of the system under which the functions of the body are so extensively involved in deviations from their wonted health that the blood is transformed into a plastic fluid, which is incapable of nourishing the tissues; therefore they decline and waste away, until the body becomes very much emaciated, and the skin has an alabaster or clayey appearance.

This theory also furnishes a philosophical explanation of Thompson's Gingival Margin. This margin will sometimes appear upon the gums long before there is any symptoms or signs of the local lesion. I have found it there two years before any other sign of the disease has manifested itself. It is there as an outstanding sign of an internal malady, and no physician need hesitate, for a moment, in determining the nature of his patient's disease when this streak is upon the gums. I regard it the most valuable sign of the tubercular diathesis that we have. And, as I have studied it, I have most always found that it keeps pace with the progressing cachexia. At first it may be a mere streak, having a faint, pinkish hue, and appearing only on the gums of the front teeth; as the disease advances, it will be more prominently marked, embracing all the teeth, and of a brilliant red. As the malady approaches its final termination, it will sometimes become almost black, showing to what an extreme condition the blood has degenerated.

I had a very marked illustration of this in a patient that came under my care about five years since. He had this streak very prominent from the beginning of his illness, and as the pulmonary lesion advanced to the third stage it became very purple and measured nearly four lines in width. About four weeks before his death, his blood became so deteriorated in quality that he became affected with *purpura hemorrahagica*. Purpuric spots made their appearance on various parts of his body, and were so fully developed, particularly upon the lower extremities, that, when scratched or torn, they would bleed freely. He also had hemorrhage from the nose and bowels. A few days before he died his gums became very much swollen, and the gingival margin was nearly black. Thus furnishing us with a very good rule by which to estimate the condition of the blood in this fatal malady.

Long Island College Hospital.—In March, 500 patients were treated in this institution, to whom 905 prescriptions were dispensed. Of the whole number, 261 were medical cases, 184 surgical, and 55 were diseases of women.

Complete Rupture of the Tendinous Cords of the Anterior Portion of the Mitral Valve.

By Ransford E. Van Gieson,
Assistant Surgeon U. S. N.

William N., seaman, aged twenty-four. Admitted into U. S. Naval Hospital, October 23d, 1861. On examination, there was found considerable hypertrophy of the heart, with tumultuous action, and a murmur with the first sound transmitted along the course of the aorta.

General condition anæmic. He was treated with arterial sedatives and tonics, with but little benefit. On the 29th a murmur was detected, with the second sound loudest at the base (aortic regurgitation?) 30th. Double murmur still apparent; same treatment with addition of four to six ounces of port wine daily. November 1st, 2d, 4th, 6th, 8th, 10th, 16th, 20th, 22d. No change in symptoms. Patient is gradually becoming weaker. December 7th. Ankles becoming swollen. 8th. Pill scillæ et digitalis. 10th, 14th. Anasarca diminished; discontinue pills. 30th. Anasarca disappeared entirely. No alteration in physical signs. January 1st. Patient has profuse diaphoresis at night, which exhausts him very much; to have acid sulph. and quinine. 10th. Sweating has gradually diminished. General condition improved. Is able to walk about the ward; physical signs the same. 20th. Appetite improving. 27th. Still improving. February 10th. Was permitted to go out of the building on liberty. 11th. Came back much worse: pulse extremely rapid, lips blue, extremities cold, slight nausea, body bathed in a cool perspiration. The action of the heart is tumultuous, and the second sound accompanied by a prolonged murmur heard over the whole of the left side. To have four ounces of whisky per day in addition to the wine. 11th. Somewhat improved. Mixture of iron and quinine. 15th. Profuse sweating at night; no alteration in treatment. 25th. Patient is gradually failing. March 1st. Sweating still continues; has no desire whatever for food. Continue stimulus. 10th. Patient was seized with severe vomiting. Pulv. Doveri, bismuthi, sub. carb. et creasoti administered, with no relief. Sinapisms to abdomen produced some slight amelioration of gastric distress. 10th, evening. Patient still continues to vomit at short intervals; pulse very rapid, 160 per minute. 11th. Nausea somewhat abated. 13th. Much worse, stomach very irritable, unable to retain food or stimulus; pulse 160–165, skin covered with cold sweat. 13th, evening. Is in a dying condition; stimulants rejected from stomach. 8.30 P.M. Died.

Sectio cadaveris thirty-six hours after death. Body much emaciated. Skin of deep yellow tinge, from injection of coloring matter of bile. Thorax.—On opening the chest pericardium contained about four ounces of limpid serum. The pericardium is slightly thickened, but nowhere adherent to the heart. The heart is considerably hypertrophied, weighing nineteen ounces. The left ventricle is much enlarged, and the walls considerably thickened, measuring one and a half inches. On opening the left ventricle, the aortic valves are found to be thickened, contracted, and studded with tenacious fibrinous vegetations. The anterior portion of the mitral valve is also covered with similar vegetations. The chordæ tendinæ of the anterior portion of the mitral valve are *all* ruptured, shortened, and covered with tenacious fibrinous effusion. The free extremities, which are expanded into small bean-shaped bodies, when drawn with moderate force toward their original muscular attachment, will not meet by about a quarter of an inch. The chordæ tendinæ of the remaining portions of the mitral valve are healthy, presenting no traces of atheroma or ulceration. The kidneys are healthy. The liver is enlarged, but appears to be nearly healthy. Remaining abdominal organs healthy.

In examining the literature of this curious lesion of the heart, we find the number of recorded instances in which it has occurred to be comparatively few. Dr. Bennett, in his comprehensive work upon Clinical Medicine, does not even refer to it. Dr. Latham, in his work upon Diseases of the Heart, makes no mention of it. A few cases are scattered about in our foreign and domestic journals, the following of which have come under my observation. The first is recorded in one of the numbers of the *Gazette Hebdomadaire* for 1859. It occurred in a noted prostitute, who, while engaged in coitus, was suddenly taken with syncope; she was immediately carried to one of the Parisian hospitals, where she shortly afterward died. Upon post-mortem examination, a *partial* rupture of the tendinous cords of the mitral valve was discovered. In this instance it will be observed that death followed very shortly after the acci-

dent. Another case, similar to this in the latter respect, is recorded by your correspondent "Gotham," in his reports of the New York Pathological Society, in the number of September 24th, 1859, as follows:—

"*Rupture of the Chordæ Tendinæ.*—Dr. Dalton related a case where a rupture of the tendinous cords attached to the anterior fleshy columns took place. The patient was a man about forty years of age, tall and spare; his previous history being unknown, as he was a stranger in the city. He was found unconscious in bed. Dr. Budd saw him first; breathing stertorous; pulse, however, had some force. Death took place some three hours after the attack. On applying the ear to the præcordium, a bellows murmur was found, loudest at the base; throbbing of the carotids well marked.

"The post-mortem examination revealed extravasation of the blood on the *surface* of the brain. No calcified arteries could be discovered in the brain. The heart contained no clots or fibrinous material. The cavities of the right side were distended with liquid blood. The whole organ showed nothing abnormal but the above lesion—*rupture of the chordæ tendinæ.*"

The amount and precise character of the rupture is unfortunately not given in detail.

A similar case was related at the same time by Prof. Clark, "where rupture of the tendinous cords had been suspected *some weeks before the patient died, and was verified by the autopsy.*" It is to be regretted that this statement of Dr. Clark is also unaccompanied by any precise history of the case.

I find another case recorded in the *New York Medical Times*, March 29th, 1862. It is related by Dr. Flint, in the Proceedings of the Pathological Society, February 12th, 1862. The patient, a female aged thirty-five, had suffered some years from heart disease. After admission she failed rapidly, and died a slow, lingering death from apnœa.

"The heart, when removed, weighed twelve and a half ounces. The right ventricle is dilated and hypertrophied, the walls being three-eighths of an inch in thickness. Both the auricles are largely dilated. The walls of the left ventricle are not increased in thickness, and its cavity is not much, if any, dilated. This condition is somewhat unusual with disease of the heart, inducing general dropsy and death. There was free regurgitation through the mitral orifice, and the enlargement of the other portions of the heart, viz., the two auricles and the right ventricle, is perfectly consistent with that condition of things.

"The interesting point connected with this specimen is not the contraction of the mitral orifice, which is common enough, but the presence of two vegetations of considerable size, one as large as a bean, the other somewhat smaller. The larger one is attached to the papillary muscle of the inferior curtain by what appears to be a small pedicle, which is a fractured extremity of one of the tendinous cords. The vegetation is produced, as I suppose, by the accretion of fibrin upon it. The other concretion is upon another tendinous cord which has not been fractured. These vegetations were so situated as to be pushed backward and forward by the direct and regurgitative currents, and being thus moved, were very liable to be detached, and to have produced an embolus. It is easy to see if the vegetation had been found plugging up any of the arteries after death, that the place of its original development could have been easily determined, especially if a portion of the tendinous cord were carried with it."

The profession are mainly indebted to the researches of M. J. N. Corvisart for the first accurate description of this interesting lesion. In his essays upon the diseases of the heart we find three cases recorded, all of which occurred during the progress of acute pneumonia. In the first case, the patient was *suddenly* seized with intense pain in the precordial region, and after suffering for a few hours with terrible cardiac anguish and orthopnœa, he died. On examination, the tendinous cords were found to be almost all ruptured near to their insertions into the mitral valves. The valves themselves were thickened, and one of them was lacerated through its whole extent. Corvisart mentions two more cases, in one of which he *presumes* the patient lived some *twenty months* after the period of rupture. After death, two of the tendinous cords were found to be ruptured.

Dr. Stokes, in his work upon Diseases of the Heart and Aorta, details a case, extracted from the records of the Pathological Society, which in many respects is similar to the one which heads this paper.

"The cords of the anterior portion of the mitral valve were all broken across near to the fleshy columns; they were *thickened, softened, and covered with beads of very soft lymph.*"

Dr. Stokes, in this latter case, inclines to the opinion that the rupture was of recent occurrence, although it would seem, from the general history of the case and the formation of lymph upon the free extremities of the cords, that this condition of things had probably existed some weeks, at least, before death.

Having now given this hasty and imperfect

sketch of the literature of this subject, let us return and briefly review some of the prominent points in our first case. The patient when admitted was undoubtedly suffering from endocarditis, causing effusion in the pouches of the aortic valves. About a week afterward we find this effusion diminished and the valves becoming contracted. From this time we notice nothing remarkable until February 11th, the day on which he returned to the hospital after being permitted to go out. At this point the case assumes altogether a different aspect. It will be noticed that on his return *all* the serious symptoms were greatly aggravated, while at the same time a peculiar murmur was detected, differing in character from those which had already existed, and continuing with but little change up to the day of his death. All these circumstances lead us to the supposition that the rupture occurred at this period, most probably on the 11th, while he was going up stairs to his ward. However this may be, all the essential elements of diagnosis, as given by Stokes, were present, viz., "sudden aggravation of symptoms, signs of pulmonary congestion, with development of a new and extended valve murmur."

Upon reviewing the post-mortem appearances, we find our presumption verified by indisputable facts, so that we may safely conclude that the patient lived over *one month* with complete rupture of the tendinous cords of the anterior mitral valve.

Cutting away of Bronchocele without Hemorrhage, with a Case. Remarks.

By E. S. Cooper, A.M., M.D.,

Professor of Anatomy and Surgery in the Medical Department of the University of the Pacific, San Francisco.

Operation March 27th, 1861.

Mrs. P., aged twenty-seven, applied to me with a small tumor situated at the isthmus of the thyroid body, of ten months' standing. It was the size of a hen's egg, and moved up and down in the act of swallowing. It was unattended with pain and had increased in size but slowly. Its growth was, however, constantly perceptible to the patient, and caused her great mental anxiety.

Being convinced that all the methods in use among surgeons will fail to give that freedom from hemorrhage, at the same time certainty of success, with avoidance of suffering to patients, and of deformity after cicatrization, which the nature of the disease and surrounding tissues reasonably warrant, I have for some time been gradually departing from the usual practice.

My first method was dissecting away the tissues covering the tumor, then passing ligatures through its lower as well as upper parts so as to include the thyroid arteries. After this, transfixing the enlargement at different points and in different directions by needles armed with ligatures of great strength, in case of large tumors using a sort of nævus needle made on purpose, with a long, piercing extremity, sufficiently long to transfix readily a tumor four inches in diameter.

Many double ligatures being thus passed through the tumor and their ends tied tightly together, it is at once reduced to one-fourth or one-sixth of its natural size. Sloughing occurs in these cases without secondary hemorrhage. But as cases operated upon in this way have been often published with their results, I shall not dwell upon it now, but proceed to my *second* method.

This consists in exposing the tumor as before and transfixing it above and below, throwing ligatures around the substance as described before and cutting it away close to the ligatures. This was done in the case mentioned without more hemorrhage than results from the simplest operations. Should the wound bleed too much in any case, I would whip-stitch the entire cut surface.

In this case every symptom was favorable from the commencement, and on the twenty-first day after the operation the patient left for her home in the country, almost recovered, and with very little deformity from cicatrization, which was almost complete.

Remarks.—Although the method of treatment adopted in the above case is applicable to those of bronchocele generally, still the surgeon will now and then meet with the vascular or *aneurismatic* bronchocele in which the excessive hemorrhage resulting from every stroke of the scalpel will be such that he is finally compelled to abandon the operation; but these cases are extremely rare, and the surgeon should not in any case be too much alarmed at a sudden gush of blood, as that will often occur in cases where the hemorrhage is perfectly controllable by occasionally whip-stitching the bleeding surface.

I repeat here, substantially, remarks made in

the publication of other similar cases elsewhere, which is done so that any who reads this report, but may not have read the others, will understand it.

Surgical writers often state that the method of ligating the thyroid arteries frequently results in secondary hemorrhage. This I have never seen in any case. Is it because of ligating the arteries in the midst of a mass of other tissue and at the same time strangulating every part of the tumor, as mentioned in the *first* method, or removing the unnatural growth close to the ligature, as in the *second*, thus causing a consolidation of the tissues around the arteries, that prevents the secondary hemorrhage as chronicled in the books?

And at this point I am reminded of a question which has often arisen in my mind as to whether the ordinary method of ligating blood-vessels by isolating them completely first, is not based upon erroneous principles. Whether the necessity of drawing the ligature sufficiently tight to cut the inner coats of the artery, is not favorable to the production of secondary hemorrhage, by inducing the too early sloughing of the ligature; and whether it would not be better in all cases to include such surrounding tissue as would admit of it, is also a question.

Of course a nerve could not be included in the ligature, but muscle, fascia, cellular tissue, and even the veins might be included. The veins which have heretofore been supposed to be particularly disposed to phlebitis when wounded, are found to be not more so than the arteries, unless the wound of the vein causes the arrest of the undecarbonized blood in its way back to the heart. But when that occurs, it becomes dangerous, because the accumulation of venous blood acts as a foreign substance and source of great irritation.

I am now constantly in the habit of sewing up the ends of arteries, even of considerable size, in a mass of other tissue, when the vessel is either hard to isolate and tie, or in that exposed situation which would leave the ligature liable to be disturbed by the sponge or other cause during the subsequent steps of the operation.

I do not believe that it is at all necessary to draw a ligature sufficiently tight, when applied to any artery, to cut the inner coat, as is supposed. Pressure, by which the hemorrhage will be arrested, would produce a change of action in the parts sufficient for the effusion of fibrin, by which the vessel would become filled.

We have innumerable examples of pressure causing the effusion of coagulable lymph. Why should a ligature be drawn more tightly upon an artery than simply to arrest the hemorrhage? It appears to me that if there is any reason why this should be done, it is to keep the ligature from slipping, which may be readily effected by including some of the surrounding tissues. In natural amputations of the extremities, the arteries are hermetically sealed by the process of nature, and a firm clot is formed in the vessels without the aid of ligatures. Who knows whether the inner coats of the arteries are cut by the ligatures even when drawn tightly? If not, it is very obvious that a very tight ligature would favor the too early division of the vessels without there being any just cause for the risk.

EDITORIAL DEPARTMENT.

PERISCOPE.

Weekly Summary of American Medical Journalism.

By O. C. Gibbs, M.D.

ARSENIC IN ASTHMA.

Our readers will remember a few remarks of ours upon the use of Fowler's solution of arsenic in tuberculosis, made a few weeks ago, with a case illustrative of its remarkable benefits. In the *Chicago Med. Journal* for December, one of its editors, commenting upon *arsenic smoking in asthma*, makes the following observation, which has a bearing upon our remarks and illustrative case. In that article (Reporter for December twenty-first and twenty-eighth) we said: "We have faith to believe that arsenic will yet be found to fulfill many indications hitherto unrecognized." We quote the following from the article before us:—

"There is probably no remarkable advantage gained by smoking the arsenic over the other methods of exhibition. The Fowler's solution has long been a favorite alterative in asthma in the West. The writer knows of one case where an asthmatic has become a confirmed 'arsenic eater,' as the result of a prescription made by him for asthma some ten years since. The paroxysms which were then almost daily and distressingly severe, now occur only at intervals of weeks or months, and are of little severity. Discontinuance of arsenic, however, is about in-

fallibly followed by a paroxysm. The amount taken at a dose never exceeds a fourth or half of a grain, and is very rarely used more than once or twice in three days. The general health of the individual is good, but he is not remarkably robust, although the complexion is clear and ruddy.

"The remarkable powers of arsenic, as a profoundly acting alterative in various neuroses, deserve more attention from the profession than they have yet received."

In regard to its method of action, our author has the following:—

"The *modus operandi* of arsenic in curing asthma is identical with that in its curing of ague, chorea, epilepsy, and certain diseases of the skin. It restores the molecular integrity of the central ganglia, upon which the parts involved depend for the perfection of their nutrition and consequent perfection in functional operation. All the advances of modern physiology and pathology are slowly but surely infixing this cardinal truth, that all disease is the result of modified nutrition, and that all scientific therapeutics consists in re-establishing the normal molecular changes in the material tissues —the principal method whereof is by securing a healthy blood to flow over upon the diseased part—and not simply by inhalations and plasters and specifics, as the manner of too many is and has been since time immemorial."

Arsenic and strychnine are articles of medicine that have pleased us more than any others, because of their positive results and uniformity of action.

A few weeks ago, we had a very interesting case bearing upon this subject.

Mrs. M., aged about thirty-eight years, had been an invalid for several years; was considerably emaciated, and had a troublesome cough for years. On being called to her, we found her laboring for breath like one in asthma; her cough was very troublesome and quite persistent; her expectoration was very profuse, of a thick, greenish-white, muco-purulent character. A physical examination revealed to us, what Simon considers an impossibility, tuberculosis of the lungs in connection with emphysema of the lungs. Iodide of potash, quinine, with morphine, and a variety of other remedies were brought to bear upon the case for a week or two, with but little or no benefit. Fowler's solution was then administered in connection with quinine, and improvement commenced at once. The asthmatical symptoms at once ceased, the cough was reduced more than one-half in the first week, and the expectoration correspondingly. We should have observed that at the commencement of treatment, the patient had night-sweats and genuine hectic flush upon her cheeks. The symptoms of hectic rapidly disappeared, After three weeks of this kind of treatment, the patient is decidedly convalescent, and, in all probability, in one week more we shall discharge her as cured. Again we say to our professional brethren, give arsenic a trial in asthma and tuberculosis.

We have made allusion above to strychnine. While speaking of so powerful, positive, and uniform a remedy as arsenic, we cannot omit an allusion to one equally powerful, positive, and uniform. Several years ago we called attention to strychnine, as a remedy in sciatica and chronic rheumatism. Within the last few weeks we have had three such cases—cases of chronic rheumatism—under treatment. They were all cases of years' duration, and were, at the time of treatment, at their acme of exacerbation. Strychnine, and nothing but strychnine, was used. A solution, four grains to the ounce, was made, and five drops ordered three times a day, with an increase of one drop every second day, until ten drops were reached, or even fifteen, if improvement was not very decided before that time. Neither of the cases have resisted for more than three weeks. One of the patients said to us, a few days since, that it was strange that it took the profession six thousand years to find out that strychnine would cure chronic rheumatism. He said that nearly all his relatives, within his recollection and knowledge, antecedent to him, had suffered long with chronic rheumatism, and died prematurely of apoplexy or heart disease, that he had faith to believe might have been cured had strychnine been brought to bear upon them remedially.

Having wandered from our subject, it may not be amiss to still continue to wander. Dr. Blackburn, of Georgia, commends the following electuary in chronic rheumatism, and also in some cases of amenorrhœa: ℞.—Pluv. cinchonæ, 3ij; pulv. gum guaiac, 3j; bitart. potassæ, ℥j; flor. sulphuris, ℥ss; pulv. zingiber, 3j; syrup q. s. M. ft. elect. Of which a teaspoonful, or enough to keep the bowels gently open, should be given three times a day. So says the *Chicago Med. Journal*. Excluding the strychnine, were we to prepare a remedy for chronic rheumatism, it would consist of cimicifuga, quinine, and iodide of potassium.

A NEW MODE OF COUNTER-EXTENSION IN FRACTURES OF THE FEMUR.

In the *Chicago Med. Examiner* for December, Prof. E. Andrews has an article upon counter-extension. We quote the following from his method of dressing the femur:—

"I first cut three adhesive straps, each a yard and a half long, and two and a half inches wide; one of these being warmed, is applied to the back, on the same side as the fracture, extending from the waist to the side, as far as the waist in front. At the top of the shoulder it is left loose for the attachment of a hook. The second strap extends from the top of the same shoulder, obliquely down the back and breast, toward the opposite side, until the ends cross each other on the side of the waist. The third strap is placed as a belt around the body, to confine the ends of the others. Next, I take a Dessault's, or any other long splint, to which I have previously had attached, at its superior extremity, a bent iron, which, passing over the curve of the shoulder, is hooked into the loose part of the two adhesive straps where they pass over the top of the shoulder. The lower extremity of the splint is attached to the leg and foot, as usual, by adhesive strap-extension.

"My experience with this dressing is very happy. The traction is distributed over so large a surface that it occasions no pain; but allows the surgeon to apply, with impunity, any amount of force necessary to make complete extension. A very cheap and efficient form of this apparatus may be constructed by attaching a curved iron, by rivets, to the top of a common Dessault's splint. A more elegant one may be made by having half the length of the splint made of a brass tube, and the other half, of a rod, with a screw surface to slide into it. On the rod turns a nut, which, resting against the end of the tube, regulates the length and makes extension. To the lower end is attached the cross-piece for the foot, and to the upper extremity the curved shoulder-piece. The whole is strong, simple, and elegant, and not costly. A variety of other forms will readily suggest themselves to any ingenious man."

We have not had an opportunity to put this recommendation on trial, yet we are disposed to regard it with favor. In fracture of the femur, we are of the opinion that extension from the top of the shoulder would very comfortably fulfill a very important indication.

CHLOROFORM IN CATALEPSY.

In the *Chicago Med. Examiner* for December, Dr. Ashbell Woodard has an article upon the above subject. On referring to the doctor's case, we are impressed with the idea that his cases were not those of catalepsy, but of hysteria. In such cases chloroform is the remedy for the paroxysm, in whatever form manifested. Its effects are more decided and immediate, when *inhaled*, than when otherwise administered. Of course, a cure of the predisposition to a return of the paroxysm, must be effected by constitutional remedies and hygienic measures.

In the disease of so-called catalepsy, "the patient at first took three doses, of twenty drops each, diluted in a wineglass of water, at intervals of an hour, shortly before the time of the expected onset. No improvement was experienced on the first trial. The second day, the dose was increased to twenty-five drops, and five doses were given at intervals of thirty minutes. The remedy so impressed the system that, on the third day from the beginning of the chloroform treatment, the paroxysm did not reappear."

REMITTENT FEVER.

In the *American Med. Times* for December twenty-eighth, Dr. H. D. Bulkley has a clinical lecture upon remittent fever.

Dr. Bulkley is physician to the *New York Hospital*, and he thinks there are few places that "afford a more favorable opportunity for the study of the different forms of malarial disease, with its sequelæ and complications," than the hospital over which he presides.

This is certainly news to us, and we are not prepared to give the statement credence. Any *city*, and particularly an Eastern city, *is not the place to study every form, complication, and sequelæ of malarious disease.* The country, small towns, the borders of rivers, marshes, ponds, lakes, etc. of the West and Southwest are the places for such study.

In regard to treatment, he says:—

"Quinine was the only remedy upon which reliance was placed, the use of which was commenced in some cases at once, *and in all cases as soon as the condition of the patient would allow it.* Preparatory treatment was used according to the indications, which varied in different cases. When the skin was hot and dry, spiritus mindereri, with or without sweet spirits of nitre, was given for a day or two before commencing the quinine. When there was irritability of the stomach, either with or without vomiting, sinapisms over the epigastric region, with small pieces of ice at short intervals, were usually found to allay this symptom. When the bowels were costive, and especially when the tongue was much furred, and the strength of the pulse was good, a dose of eight or ten grains of calomel was given,

followed by castor oil, or some saline purgative. When the stomach and bowels were in a condition to receive it, quinine was given in doses according to the urgency of the periodic symptoms, varying from one or two to five grains every three hours, and sometimes every two hours for a short period."

Having had considerable experience with malarious diseases in Ohio, we are disposed to express our conviction that not even a single paroxysm need be passed in *preparatory* treatment. The earlier the curative treatment can be brought to bear, the better, whether for the cure of the fever or the subsidence of its complications. We believe the best "*preparatory*" *treatment*, for intermittents and remittents, *is that which will immediately prevent a return of the paroxysms on the one hand, or the continuance of the fever on the other.* For ourselves, we have no doubt but that malarious diseases can be *prevented, cured*, and that cure made permanent, at the will of the adviser. But the present is not the proper place to enlarge upon these points.

The great Sydenham did not believe that any preparatory treatment was necessary, and he said that bleeding and purging only served to prolong the disease under consideration. Prof. Bowling, of Nashville, Tennessee, has repeatedly given his opinion to the same effect. In the *Nashville Journal of Med. and Surg.* for January, 1860, he has the following in regard to the time of administration, and the dose:—

"If we have the selection of time to begin with it, (quinine,) we choose that nearest to the *last* paroxysm, the beginning of the sweating stage of that paroxysm being preferred. And this rule we obey, whether the type be quotidian, tertian, or quartan. I make the interval between these doses two hours, so that eighteen grains are taken in four hours."

Our method has been somewhat different from the above. If we see the patient in, or immediately after a paroxysm, we give five grains of calomel, and follow in four hours with castor oil or salts and senna. Three or four hours before the paroxysm is expected, we give from six to twelve grains of quinine, (the amount varying to meet the mildness or severity of the disease,) and from two to four grains of opium, and order the patient at once to bed, if not already there. If we see the case only a few hours before the paroxysm is expected, we omit the cathartic until the following day, and proceed at once with the opium and quinine. As the disease has presented itself in our practice, this treatment will arrest it at once. A repetition of the dose, daily, will cure the malarious disease, and any complications can be attended to at our leisure. After the first week, half of the above-mentioned dose, once or twice a week, for the balance of the malarial season, will render the cure permanent.

In a disease having daily exacerbations and remissions, the remedy designed to supersede it by its specific action need be given *only daily*. The dose should be such as to supersede the paroxysm—anything more than this, and other doses than the one, only tease the system unnecessarily. By such administration a great saving of quinine is effected. If a tonic is required, quinine can be given in smaller doses more frequently; but, when administered with a view to its specific action, a daily dose is sufficient, if of sufficient size and properly qualified.

Dr. Bulkley says: "The quinine was always used in solution." He does not tell us how dissolved. We have always used it, in the disease under consideration, in solution—the solution made, ordinarily, by the addition of *tartaric acid*. In such a solution the quinine is more speedily operative, and, we think, as effectual as nearly double the amount in substance. Under certain circumstances, a solution made by adding *spirits of nitre* to quinine may be found a more appropriate combination.

GELSEMINUM.

In the *Journal of Materia Medica* for December, Dr. C. A. Lee has an article upon the gelseminum. He says:—

"A careful examination of what has been written regarding this article, together with considerable personal experience, lead us to believe that it is one of our most valuable indigenous remedies; its special application being as a nervous sedative, with decided alterative properties."

"The gelseminum, as may be inferred from what has already been stated, has a pretty wide therapeutic application. It is not only applicable to febrile affections, but the *phlegmasiæ* generally, especially when chronic, or attended with much irritability. It is well adapted to *cardiac palpitation*, when not owing to organic disease, but abnormal irritability; also to spasmodic affections dependent on the same condition. In some forms of *headache*, it affords prompt relief, also in coryza, in which it is almost certain to prove beneficial. The diseases in which the late Professor Tully was in the habit of using this article, were various kinds of *cough*, including *hooping-cough*, dyspnœa, phthisis, acute and subacute *rheumatism*, *hysteria*, *etc.*"

In the South and West this article has been highly recommended in fevers. Dr. Lee says:—

"The moderate sedation produced by gelseminum; its quieting influence upon the nervous system; its slight narcotic power; its controlling effect upon the circulatory system; its unlocking of the secretions, and its freedom from any marked irritant properties—all favor its employment in idiopathic febrile disorders, while, at the same time, we are to sustain the vital forces by proper nutriment, and by other suitable measures oppose that series of morbid changes occurring during the disease, by which a fatal result, in any individual case, appears likely to be brought about."

We have used the gelseminum but little, and with no particularly marked curative effects, unless we except certain forms of nervous headache. We have used Keith's preparation of gelsemin, and have always kept below his medium dose; and yet we have occasionally seen manifested head symptoms of so unpleasant a character that the patient could scarcely be prevailed upon to repeat the dose, even in smaller quantities. In the first case in which we ever administered it, we found the patient, on the following day, complaining of being "drunk" without having drank anything. And, certainly, she looked like one perfectly stupefied with alcoholic liquors. The eyes were dull and expressionless—the lids drooped as though it were nearly an impossibility to raise them, and next to an impossibility to keep awake. She was much alarmed—thought herself to be dying, because her eyesight was so much disturbed *that she could not see across the room.* The stomach was not disturbed.

CIMICIFUGA.

Dr. Lee, in the number of the *Journal of Materia Medica* above referred to, has an article upon this remedy. As we have so recently given an article upon cimicifuga, we shall at present make but one quotation:—

"But after making all due allowance, there can be no doubt that the cimicifuga is an admirable remedy in incipient tuberculosis, as well as scrofulous affections generally; especially where there is much irritability of the system, frequent, weak pulse, impaired digestion, diarrhœa, or night-sweats, or any other sign of general cachexia. We are in the habit of giving the syrup of iodide of iron, in a decoction of the cohosh, in these cases, and with the happiest effects. Sometimes the iodide of potassa, or Lugol's solution, may be substituted; but the cimicifuga is to be administered as freely as the stomach will bear, short of nausea.

"This combination, or even the remedy above, is well adapted to many rheumatic and gouty affections. I am not aware who introduced it as a remedy for rheumatism, but it is well known to have long been employed for that disease in domestic practice, and enjoyed as high a reputation in its cure as any of our indigenous plants. Within the last thirty years it has been used for this affection by regular practitioners to a great extent, and often with the most satisfactory results."

DIPHTHERIA.

Our readers will remember that we have several times expressed our opinion in regard to local applications in diphtheria, and the comparative value of the respective agents thus used. We have objected to strong solutions of nitrate of silver, and given our preference to the muriate tincture of iron.

In the *Berkshire Medical Journal* for December, Professor Henry Thayer has a few remarks in coincidence with our own:—

"He remarked that, since the opinions which he had expressed a year ago on the subject of topical treatment, he had found tincture of the sesquichloride of iron more effectual for this purpose, in most cases, than the nitrate of silver; and from all the reports on the subject during the year, he inferred that the use of the tincture of the sesquichloride of iron, or of the tincture of iodine, or of the bromide of potassium, was generally preferred to the solution of the nitrate of silver by those who had had the best opportunity to judge of their effects.

"He had found some physicians who had no faith that any benefit was derived from local applications, and consequently omitted them entirely. But without considering the local application capable by itself of controlling the disease, there was the fullest evidence that it was a very effectual adjuvant to the constitutional treatment. His own experience had satisfied him on this point, and it was fully sustained by numerous authorities; indeed, by all those who have written from personal experience upon the subject.

"He brushes the exudation membrane and the whole reddened surface twice a day with the tincture, sometimes slightly diluted, until the inflammatory condition begins to exhibit a constant abatement, after which its use is gradually suspended. The effect on the exudation is often very marked, and the increase of inflammation is less rapid, and convalescence earlier, than when the local affection is let alone."

HYDRARGYRUM CUM CRETA.

In the Reporter for February 1st and 8th we gave a summary of two articles, in which the opinion was given that the remedy under consideration was unreliable and unsafe.

In the *Berkshire Medical Journal* for December, Dr. Samuel Duncan, of Williamstown, Massachusetts, has an article upon the hydrargyrum cum creta. We have space only for the doctor's conclusions:—

"1st. When this preparation of mercury is exposed to the light, especially during the summer, a portion of the suboxide which it contains is decomposed into the metal and red oxide, (protoxide,) which, in sufficient quantity, always acts as a violent instant poison.

"2d. That the older the preparation, and longer the exposure to light, the less the mercury, and greater the amount of the oxide.

"3d. That in order to have a perfectly reliable article of hydrargyrum cum creta, it should be made of pure material, kept in a cool place, and excluded from the light.

"4th. That freshly-made and light-colored specimens are best, and those of a deep color should be rejected.

"5th. That this preparation is unstable; that it tends to separation by the volubility of its mercury, and the superior mobility and gravity of its particles.

"6th. That we have no reason to suppose that mercury, however pure, exerts any influence on the system in its metallic state: but that it must first be converted into an oxide, and this oxide must be basic to a soluble compound; and that the amount of suboxide in hydrargyrum cum creta is not at all injurious, providing, however, it remains as such; and that when this preparation proves an *irritant in itself*, it is due to a higher degree of oxidation."

In the same journal above referred to, Dr. H. M. Seely has an article upon the same subject. Considering the subject of the first importance, we make a few extracts:—

"As it has been observed that samples which, when fresh, were administered with desirable results, were found, after a time, to lose their character and to degenerate, some other cause aside from improper manufacture must therefore be sought.

"The fact just mentioned, that samples at first reliable become useless, compels us to look for a change in the material itself. Does the metallic mercury in its finely divided condition become gradually oxidized, so that not only metallic mercury, but one or both of its oxides are administered?"

After describing several processes of analysis, he observes:—

"Of a specimen thus analyzed, which originally should have contained 37·5 parts of metallic mercury, 22·25 parts had changed to the red oxide, and 4·05 parts to the black oxide, leaving less than a third of the metallic mercury in its original condition.

"With the knowledge of such a change in the character of the metallic mercury before us, we need look no further for the cause of the alarming result attending the use of long-kept samples of hydrargyrum cum creta; the oxide existing in the powder produced by the gradual oxidation of the finely divided particles of mercury probably being converted in the fluids of the stomach into compounds of a more energetic character.

"These facts will hardly deter those who have been accustomed to prescribe this preparation with satisfactory results, from continuing its use; for, as heretofore, they will secure fresh samples from trustworthy manufacturers. If at any time they find the result of their prescription different from what was anticipated, they will at once suspect the cause, and rejecting the deteriorated sample, resort to a new and reliable one.

"Those who have abandoned its use will hardly return to it, preferring to rely on the metallic mercury in the form of blue mass, in which the metal, though finely divided as in the cretaceous powder, is not so liable to oxidation, surrounded as every little particle is by a viscous covering, shutting off the oxygen of the air.

"The knowledge of these facts should lead either to a very careful selection of this preparation, or to the substitution of one of a less variable character."

HOARSENESS OF SINGERS, PRODUCED BY FATIGUE, ETC.

The first tenor of the continental opera is accustomed to employ, as a remedy for the annoying affection, the following treatment: Take, for five or six days, twice a day, as a beverage, from five to six drops of nitric acid in a glass of sugar-water. In case the system should become so accustomed to this medicament that its efficaciousness is diminished, the dose should be increased to ten or eleven drops.

THE CAUSE OF DEATH IN DROWNING.

Death in cases of drowning has been attributed to various causes — the introduction of air into the stomach, into the bronchial tubes, closure of the epiglottis, syncope, and asphyxia. M. Beau believes that the cause of death is asphyxia from want of respirable air; but that the small quantity of water which enters the bronchial tubes requires to be explained. Is it that, in drowning, there is an arrest of the respiratory movements? To the solution of this question M. Beau has applied himself, and has performed the following classes of experiments, which are recorded in the *Archives Générales de Médecine* for July, 1860, and which went to show that death takes place in drowning from an irresistible horror of the water inducing an arrest of the movements of respiration and closure of the respiratory orifices; and that this takes place irrespectively of the actual introduction of a small quantity of water into the air-tubes at the moment of submersion.

There is, then, in the words of M. Beau, a *hydrophobia of inspiration* in the drowning analogous to the *hydrophobia of injection* in persons bitten by rabid animals. The last class of experiments show that death in these cases is comparable to that which arises from strangulation.—*Gazette Hebdomadaire.*

ON DIGESTION.

Mr. Brücke, of Vienna, (*Constatt's J. d'Pharmacie* for 1859,) has communicated to the Austrian Academy of Science an interesting paper on the influence of acids and pepsin in digestion, and on the question whether the latter is formed during that process; and also, in what manner the secretion of the digestive fluid takes place.

By *pepsin*, Brücke understands the nondescript substance emanating from the glands of the stomach, and which, in an acid solution, has the power of dissolving all albuminous matter *in* the stomach as well as without it.

He found by a number of careful experiments that this power is strongest in a solution of $\frac{1}{4}$th gramme of dry hydrochloric acid in a litre of water, decreasing when the amount of acid rose above $1\frac{1}{4}$, or fell below $\frac{2}{10}$ of a gramme.

Contrary to the generally accepted views of Mulder, that part of the albuminous matter may pass into pepsin, Brücke's experiments go to show that such is not the case. He concludes that the stomach in an empty condition contains no acid fluid, which is only secreted by the action of the nervous system when food is introduced.

Dr. Ebstein (*ibid.*) communicates a series of experiments on the action of saliva upon starch. Like Leuchs, Frerichs, and others, he found that starch, in contact with saliva, even in the presence of some acid, to a certain extent is converted into dextrin and sugar, and that the secretions of the stomach, though of an acid reaction, do not prevent this change. Dr. E. remarks, that while secreting the saliva necessary for his experiments, he found it advisable to abstain from *smoking*, which, we suppose, he otherwise considers a legitimate occupation during physiological experiments; he does not, however, suggest the same caution in regard to *chewing*.

THE PROPAGATION OF WORMS THROUGH FOOD.

A short time ago, in a country district near Dresden, several persons were taken ill with rheumatic and typhoid symptoms, and one woman became gradually worse and worse, more and more emaciated, and weaker, and at length was removed to Dresden, and placed under the care of Professor Zeucher. There she died. No apparent cause was present to account for her muscular weakness and pain, her emaciation and death. But her body was dissected, and it was noticed, on examining with a magnifying glass, the muscular tissue, which was everywhere atrophied, that it was covered with minute spots. These spots were separated, and their anatomical structure proved that each spot was an encysted entozoon, known to naturalists as the *trichina spiralis*. The woman's body was full of them. Did this cause her death? And if so, how were these entozoa introduced? Or was their production an instance of spontaneous generation? Subsequent inquiry and experiment answered all these questions. Virchow took a portion of the woman's muscle, and, mixing it with other food, feed rabbits with it. In five or six weeks the animals died, weak, emaciated, just as the woman had done; and on examination their muscular system was found to literally swarm with the same parasites. The source of the mischief was eventually traced to the flesh of a pig which had been killed, cured, and eaten in the district, the woman having been one of the partakers, for it was found that the hams and sausages contained a large number of *trichinæ*. Now the discovery and the recognition of the entozoon, and the subsequent experiments undertaken in consequence of its recognition, did not, it is true, furnish a clue to the cure of the disease, but they furnished an infallible guide to its prevention. For they proved not only the parasitic nature of the disease, but that the entozoon was introduced from without; that it was introduced, like many other *helmintha*, through the medium of flesh containing the living organisms; and it pointed, with numerous facts of the same kind, to the necessity of exposing animal and vegetable substances to a sufficient degree of heat to destroy the vitality of any organism they may contain before they are used as human food.

Artificial Limbs on the Battle-field.—We hear of numbers of the victims of this foul rebellion—men who, in the service of the country, have lost an arm or leg, or both—coming to the studio of the Surgeon-Artist Palmer, of this city, who is placing them again on foot, and restoring their arms for *actual service* on the battle-field.

The gallant Captain Putnam of the Massachusetts 20th Regiment, whose right arm was shot off close to the body, at the battle of Ball's Bluff, has been supplied with a species of armor, (he not being willing to wait for an arm to be made,) and is again at the head of his company with sword in his left hand, to offer that too, if need be, for the honor of his country. A truly sublime spectacle.

Lieutenant-Colonel Ward, also of the Massachusetts 15th Regiment, who lost a leg in the same battle, while heroically leading on his men, is now about to return to his regiment on a Palmer leg. Also Colonel Dougherty, of an Illinois regiment, who gallantly left his own right leg on the battle-field, at Belmont. Several others, of our bravest officers, with the aid of these incomparable limbs, will be immediately at their posts, again to do battle on legs that never *run*, yet always *advance*.

Palmer has opened a branch studio at No. 2 Astor Place, New York, for that State and Connecticut.

THE MEDICAL AND SURGICAL REPORTER.

PHILADELPHIA, SATURDAY, APRIL 12, 1862.

DENTISTRY AS A PROFESSION.

Comparatively few years have elapsed since dentistry has been elevated to a distinct profession in this country. From a very remote period, however, the dental art was practiced by a particular class. Among the Egyptians there were individuals, as history informs us, who practiced "stopping teeth with gold," after they had studied those precepts which had been laid down by their predecessors, and who made artificial teeth. Æsculapius III., the son of Arsippus and Arsinœ, is said to have been the first who extracted teeth. Hippocrates also gives instructions in regard to the time when and circumstances under which teeth should be cauterized. But their knowledge of the structure and development of the teeth was very limited, and their views extremely fanciful. Hippocrates describes the tooth as a gelatinous substance growing from the head and jaws, the fatty part of which is dried by heat and burned up. Aristotle asserts "that the teeth continue to grow and increase in length during life," and "that man has more teeth than woman." Aretæus considers the cause of toothache is known only to God. Scribonius asserts that loose teeth may be tightened by a decoction of patience-root in wine or ass's milk; and he mentions a great variety of tooth-powders, among which one composed of "burnt hartshorne, mastic, and salammoniac" may be mentioned. Marcellus recommends the use of amulets for the cure of the toothache, which seems to have been one of the prominent affections of the teeth recognized in days of antiquity. Galen, who appears to have had the best knowledge of this subject, gives a full description of the structure and formation of the teeth, and describes the various operations in dental surgery then known.

But dentistry was not then a distinct profession. But few operations save that of extraction were performed, and these all by those who were trained up to the practice of the healing art. The knowledge existing was all drawn from the experience of those who preceded them, and partook, in all its details, of the fanciful notions which were prevalent in medicine. Little was known of physiology; the notions of pathology were crude and undigested, and the practical operations were in entire consonance with the fancies and superstitions of the dark age in which they lived. It was reserved to a later period and to another age to assign to dentistry its proper position. It is now recognized as a distinct branch of the healing art. It has its teachers, its schools, and its diplomas distinct from all other branches of medicine, yet so intimately interwoven with them, that while one may be a pathologist without being a dentist, yet no one can be a good dentist without being a pathologist; while one may be a surgeon without understanding all the minutiæ of dental operations, yet no one can be a good dentist, practically, without a thorough knowledge of surgery. The barber, as of old, may learn to extract a tooth well, as a mere mechanical act; but a barber would hardly be qualified to manufacture and insert a set of teeth.

While, therefore, dentistry is and should be recognized as a distinct branch of the medical profession, it should be as distinctly asserted that there is an intimate relation between the two, a mutual dependence one upon the other; such a dependence as will lead to the utmost cordiality and courtesy. As the surgeon, so the dentist should be a thorough anatomist. The surgeon who has a vague and indefinite knowledge of the anatomical structure of the part is poorly qualified to amputate a limb, ligate an artery, or extirpate a tumor with success; so the dental surgeon is equally unfit to perform intelligently and successfully any of the numerous manipulations of his art without some minute anatomical knowledge. The structure of the tooth, of the bones which enter into the construction of the mouth, the location and relation of the nerves and blood-vessels which supply that portion of the system with nutrition and with nervous energy—especially the ramifications of that pair of nerves the disease or exposure of which will subtract almost the entire sum of happiness from life—should not the dentist understand these well and fully? Will not his manipulations, skillful though they may appear to the unpracticed eye, be but the vagaries of ignorance without such knowledge?

So also the dentist should be a good physiologist. Not that he should necessarily be able to determine the function of every organ of the body, as the physician, but the physiological structure and functions more particularly of those organs which are concerned with the mouth, and which have more or less to do with every change which disease effects in that region—*these* he should fully understand in all

their relations to each other, in all the functions they perform. And he should not be content with a merely superficial knowledge of them. The more entirely familiar he is with their physiology, the better will he be prepared to recognize and remedy any deviation from the natural standard.

The dentist should also be a good pathologist. Understanding the normal functions, he should also understand the abnormal conditions. Diseases which affect the buccal structure and organs must necessarily come under his observation every day of his practical life. He will be compelled to take cognizance of them. They will present themselves in every variety of aspect and condition. Perhaps there may be an abnormal composition of the fluids, the secretions of the salivary glands. There may be an accumulation of matter in the antrum of Highmore from some cause. The root of a tooth may take on morbid action, and ulceration be the consequence. The nerves may become diseased and give rise to odontalgia, neuralgia, or even results still more terrible and disastrous. The dentist should fully understand the exact pathological condition in all these affections, as well as many others connected therewith, which will obtrude themselves unbidden upon his notice, and demand attention at his hands. So, also, he should have some knowledge of therapeutics or the application of remedies to the cure of disease. Not that he should become a general practitioner of medicine. His therapeutic knowledge may be general, and yet should be sufficiently minute to enable him to determine correctly and accurately as to the cause of the disease he encounters, and the proper remedies to be employed. The dentist is not the mere automaton that is to go through a certain round of manual operations and manipulations—the machine which, once set in motion, will grind out and polish off a beautiful piece of mechanism. He ought to understand fully all his operations, and be a good mechanician; but he ought to be more than that. The automaton may extract a tooth, or plug a cavity, or produce a faultless specimen of mechanical art; the thinking, reasoning man should do more. Such a one should be able to give a reason for the faith that is in him, to adjust his mechanical productions nicely to anatomical and pathological conditions, so as to give the best prospect of success.

The dentist should also have some knowledge of chemistry. The composition of the fluids, which are secreted by the glands of the mouth and by the stomach, bears an important relation to diseases of the mouth, as well as other portions of the system. Nature has compounded these fluids in just the exact proportion necessary for the function they are designed to fulfill. The dentist should understand these proportions, and be able to detect any deviation from them. The action of these fluids has an important bearing not only upon the structures themselves, but also upon the materials used by the dentist in repairing the ravages of disease. Hence the necessity that he understand the chemical relations that exist between them. Without such knowledge, to his utter mortification and disgrace, his "gold may become dimmed, and his fine gold may become tarnished." The importance, therefore, of thorough education in all these particulars to the dentist who desires to occupy a distinguished place in his profession, is evident. The time has passed when dentistry is to be practiced by the ignoramus. The demands of the age require education in this branch of the medical profession as well as that which relates more especially to disease of the general system. The progress of events, the growing importance of the art, the rapid strides of mechanical improvement, have elevated dentistry to the position of a profession, and imperiously demand that the recipients of its honors shall be men of science as well as art, theoretical as well as practical; that they shall not be content to travel in one beaten track, like the horse in the tread-mill; that their ideas shall not run on perpetually in the same rut channeled out for them by the continued attrition of ages, and which will necessarily set them completely adrift when any new combinations arise; but that they shall be rooted and grounded in the fundamental principles of medicine generally, and so thoroughly versed in the science of their own particular specialty as that the medical profession will be pleased to recognize them as worthy members of the great fraternity, and will be compelled to award them the deference due to superior attainments in one important department.

Among dentists themselves also as members of a profession rapidly rising in importance, there ought to be an *esprit du corps* which shall lead them to be content only with the most rapid growth and progress in the art. To excel—not merely to reach a lazy mediocrity—*to excel* should

be the motto. To elevate, not depress the standard of attainment.

We are, ourselves, no dentists, but we offer the foregoing thoughts as a tribute to a specialty rapidly coming to the maturity of a learned and intelligent profession, and which, in its exalted position, as medical men, we most gladly recognize.

EDITORIAL NOTES AND COMMENTS.

Street Cleaning.—The Augean stable is not yet cleansed. A street sweeper is occasionally seen dragging his broom or hoe about the streets, and a cart now and then carries off a few shovelsfull of the mass of filth which has accumulated in our streets. But, from present appearances, some Hercules will be needed to complete the work, scarcely yet begun. The subject has been before the Councils, but those bodies are too busy about other matters to give this, the most important which can now engage their attention, the proper consideration. Meanwhile spring and summer are hastening on, and the rays of the sun begin to seek out the filthy dens and purlieus of the city, and we may soon find ourselves in the midst of a pestilence equal to that of the yellow fever which once prostrated the business of this city, and turned the tide of trade toward New York. At the last meeting of Councils the subject was again discussed, but no conclusion reached. What is wanted is a thorough system of operations, managed by honest, faithful, and capable men. The contract system has proved a failure. It should be repudiated. The great European cities are cleansed without expense to the municipal corporations, and in some instances a bonus is paid for the privilege. The persons who do the work are held in heavy bonds to fulfill their duty, and the penalty is exacted without delay on proof of default. We see no reason why the same or a similar system might not be adopted here, and a revenue be derived from the street soil, both to the city and to the persons who carry it away.

New York College of Pharmacy.—The regular course of lectures in this institution during the past winter has been quite successful, not so much perhaps on account of the number of students who came up for graduation at its close, or will graduate at the close of summer, as because of the zeal evinced by them, their appreciation of the labors of the teachers, and which expressed itself most prominently by the establishment of an association among themselves, in which they purpose to cultivate among themselves *το Καλων χαὶ το 'Αγαθον ἐν τη Φυση*, the beautiful and the good in nature. This association continues its meetings during the summer.

The degree of Graduate in Pharmacy was conferred upon Augustus W. Weissman, Jr., of New York City, and George J. Waugh, of Paris, C. W.

A still further evidence of the prosperity of the College is the announcement of an extra course of practical lectures on Pharmacy and Chemistry during the summer months, at the request of the students. A decided improvement in attendance upon the lectures has taken place, and a new impetus given to the whole *materiel* of the College, under the present board of instruction. The professors in both of them are from Philadelphia.

Anæsthetics in Midwifery.—We publish the following circular at length, for the purpose of directing the attention of the profession to the important subject therein mentioned, and to say that replies to the same may be addressed to Dr. H. Culbertson, Zanesville, Ohio, who is desirous of obtaining data upon the subject, for his own and for the information of the fraternity generally:—

1st. Have you used chloroform or ether in midwifery? 2d. If either, do you use it generally or exceptionally? 3d. About what quantity do you give of either? 4th. Do you carry the anæsthesia to insensibility only, or to unconsciousness? 5th. Have you noticed whether ether produces excitement in *these* cases; if so, has the excitement produced any injurious effect? 6th. Have you noticed undue excitement or sedation from chloroform, and what effect therefrom? 7th. In your observation, does chloroform or ether retard or aid uterine contractions? 8th. Do either of these agents relax the perineal muscles and os uteri and promote the vaginal secretion? 9th. Have you observed any infantile mortality or disease attributable to the anæsthetic used? 10th. Have you observed any maternal mortality or disease from the same? 11th. Have you noticed any blood changes, (color, etc.,) from the use of the anæsthetic in the case. 12th. Have you known a case of flooding after anæsthetics were used? 13th. Have you known a case of puerperal fever after anæsthetics were used? 14th. Do women convalese more rapidly after use of these agents? 15th. Does nausea or vomiting generally result after the use of these agents in

labor? 16th. Do you use it in natural or unnatural labor? 17th. In your opinion do either of these agents leave any injurious effects on the mother's system? 18th. Do you know of any fact contraindicating the use of anæsthetics in midwifery? 19th. Will you be kind enough to narrate briefly a case in which either (and which) of *these* agents were used in natural or unnatural labor? 20th. Do these anæsthetics act differently on different temperments, on which the best?

Compulsory Vaccination in New York City.—We have before us the brief but very excellent Report of Dr. Lewis A. Sayre, *Resident Physician*, presented to the Board of Commissioners of Health of New York City, upon the subject of compulsory vaccination. The doctor announces, as the conclusion to which he has arrived, after a careful study of statistics and of authorities, "that the small-pox is capable of being entirely eradicated from any community by a proper and persistent system of universal and repeated vaccination." And that "when properly performed, it is a certain and perfect protection against that disease." These propositions he demonstrates by a carefully collated array of statistics. As a sample. Out of twenty-two millions of people in certain countries, there died annually from small-pox, previous to vaccination, 62,861, and from the same number of people since vaccination was adopted, only 7403 died; and we have reason to believe, he says, in fact we are almost positively certain, that had the vaccination been perfect and universal among these twenty-two millions, the other 7403 could have been saved also. So, also, in the Nursery Hospital, New York, into which, during three years, 3566 children were admitted, not a case of small-pox occurred. During this time the attending physician attended personally to the vaccination of every child on admission. In the subsequent five years vaccination was neglected, and 44 cases occurred in 6867 admissions.

While, therefore, "vaccination will prevent small-pox," its "protecting influence is not lifelong in its duration," and requires to be repeated several times, "or until the system has been thoroughly infected with the vaccine poison."

In view of these facts, Dr. Sayre recommends the enactment of such laws as will properly enforce efficient and universal vaccination, and that it be repeated as often as every five years till the age of twenty-one, and that each person shall be compelled to have a certificate testifying the same, the law to be enforced by such penalties as shall secure its observance. A bill containing such provisions is now before the New York Legislature, and its passage strongly urged. As a sanitary measure, required for the protection of the inhabitants of all our large cities from the ravages of a fearful disease, it presents the strongest possible claims for the consideration not only of the legislators of New York, but of other States.

New Remedy for hooping-cough.—M. Foster, Esq., in the *Medical Times and Gazette*, recommends the use of the common clover hay (*trifolium in fæno*) in this disease. He says he became acquainted with it in an indirect manner, it coming originally, he believes, from an old fisherman of Hastings. Its effects in alleviating the spasmodic character of the paroxysms, and his success with it has been so great as to cause him to recommend it to his fellow-practitioners in these troublesome cases. "Since using it I have begun to disbelieve 'the natural course' of pertussis. I have generally found that it answers best when it acts slightly on the bowels. The hay should be sweet and leafy. The formulæ are as follows:—

"The Infusion:—

℞.—Trifoli in fæno, ℥ij; aquæ bullient., Oj; macerate for four hours and then strain. For a child of five years, take a tablespoonful three times a day.

"The Syrup:—

℞.—Trifoli in fæno, ℥ijss; sacch. cand. ℥ij; aq. bullient, Oj; macerate the hay in the water for an hour with gentle heat, then boil down to a proper consistence. For a child five years, take two teaspoonfuls four times a day.

"Mr. Squire has prepared for me a fluid extract, which may be obtained from him."

Mr. Arend, druggist, corner of Eighth and Poplar Streets, in this city, has prepared a syrup of the clover hay, (*syr. trifolii*,) which represents the medicinal qualities of eight ounces of the leaves and flowers of clover to the pint of syrup. The syrup is administered in one or two teaspoonsful doses, repeated several times in the day. As hooping-cough is prevailing considerably at the present time, it would be well if the claimed merits of clover were tested by practitioners.

American Association for the Insane.—By the notice below it will be seen that this Association

does not follow the noble example of the American Medical Association, in postponing their annual meeting till the whole country shall be represented in its sittings. We had hoped such would be the case, and that among medical men nothing would transpire which should recognize any division among them. We trust such may be the result still.

The sixteenth annual meeting of the Association of Medical Superintendents of American Institutions for the Insane, postponed from June 11th, 1861, will be held at the "City Hotel," in the City of Providence, Rhode Island, on Tuesday, June 10th, 1862, at 10 A.M.

JOHN CURWEN, M.D., *Secretary.*

NEWS AND MISCELLANY.

Charity Hospital of Philadelphia.—The fourth annual report of the Medical Board of this hospital (Buttonwood, below Broad Street) has been issued. Since the last report 3600 patients have been relieved. The surgical cases have considerably increased, and "the lying-in department supplies a want long felt in our city; and strange as it may appear, yet it is true, that until this institution was established there existed no place, except the Almshouse, where the stranger or the worthy female could resort to pass that period so full of peril and anxiety to every mother. Forty females have been carefully attended in their confinement during the past year, and many of their children have been nursed in the hospital for a considerable time after birth, at a trifling compensation weekly, in order that the mothers might be left free to obtain the necessary means of immediate as well as future support."

The hospital is at present rent free, thanks to the consideration of the City Councils. The income is remarkably small for the number of cases treated—the whole expenditure to it last New Year's Day being only $553. We know no public institution more worthy of support than this.

Penn Widows' Asylum.—The annual report of this benevolent institution for indigent widows and single women, states that the managers were enabled in 1861 to provide a home for thirty-five aged and worthy inmates, of whom thirteen have died. The means for providing for such a large family are insufficient, and the managers appeal to the public. The whole receipts for 1861 were $1695, the disbursements $1669, and the balance on hand under $19. Money donations are not exclusively required; gifts of almost any description will be acceptable.

Spring and Summer Courses of Instruction.—The School of Practical Pharmacy for Physicians and Students of Medicine, for so many years conducted by Mr. Edward Parrish, at his laboratory, 800 Arch Street, commenced the summer session with an average class, on the 2d of April. This is one of the most thoroughly practical and useful courses of instruction conducted in this city, and, indeed, furnishes the student with advantages which can be obtained nowhere else in this country.

American Pharmaceutical Association.—The Annual Meeting of the American Pharmaceutical Association, for 1862, is to be held in Philadelphia, on the fourth Wednesday in August.

London Bread.—It appears that of thirty-two samples subjected to analysis, *seventeen*, or *more than one-half*, contained *sulphate of alumina and potash*, commonly known as alum. The quantities ranged per quartern loaf between 25·91 grains and 58·06 grains, and per sack of ninety-two 4lb. loaves between 5oz. 4dr. and 33oz. 2dr. It appears further that, as the rule, to which there are some exceptions, the more respectable high-priced bakers, who buy the best flour and sell superior bread, do not make use of alum, for the employment of which no necessity whatever exists. The principal reason why alum is so generally used by the bakers who sell cheap bread is, that they are thereby enabled to impart to much less costly flour, when made into bread, the color and appearances which, without the alum, can only be obtained by means of a flour of superior quality and higher price. That the addition of a powerful substance, like alum, and in the large quantities detected in the above analyses, is prejudicial to health, and is productive of dyspepsia and other derangements of the digestive organs, is well ascertained. The adulteration of bread with alum is contrary to law, and bakers using that substance are liable to punishment. This offense is punishable not only under the Bread Act, but under the recent act for the prevention of adulteration. The former act is sometimes—that is, rarely and at long intervals—enforced, but the latter is, as respects the adulteration of bread, as of other articles, inoperative. It is, therefore, obvious that the law is at present wholly ineffectual in putting a stop to a very scandalous and injurious adulteration of a prime article of daily consumption.—*Dublin Medical Press.*

Surgeon-General Finlay.—Surgeon-General Clement A. Finlay, who has been removed from the head of the Medical Department of the army, has been on the medical staff upwards of forty-four years, having been appointed surgeon's mate in the First Infantry, August 10th, 1818. His commission as surgeon-general, with the rank of colonel, a rank which he obtained by seniority on the death of Brevet Brigadier-General Thomas Lawson, dates from May 15th, 1861. Dr. Robert C. Wood, who is at present acting surgeon-general, was appointed assistant surgeon on the 28th of May, 1825, and has held his present rank of full surgeon since 1836.

Surgeon-General Finlay was born in Ohio, and appointed from that State. He has been a resident, however, of the Twenty-fourth ward, in

Philadelphia, and is well known to many of our citizens.

Dr. Isaac J. Hays, who distinguished himself in the great Arctic Exploring Expedition, has been nominated by the President for the post of Brigade Surgeon, and confirmed by the Senate.

Illinois State Medical Society.—The next annual meeting of this Society is to be held at Jacksonville, commencing on the first Tuesday, the 6th day of May proximo.

We are pleased to see the State medical societies preparing to hold their regular annual meetings, and trust that new life and interest may be infused in them all.

Dr. T. B. Cooper, member of the present Congress from the seventh district in this State, died on the 4th instant, at his residence, Coopersburg.

Life Insurance.—The subject of life insurance is just now assuming a well-merited degree of importance in the community. It commends itself to all classes. As one of the oldest and most reliable companies, whose claims are being canvassed, we take pleasure in presenting the following annual statement of the Connecticut Mutual Life Insurance, of Hartford, Connecticut. It has an accumulated capital of $4,358,009 60. The total receipts for the year were $1,117,500 28. The amount of losses paid for the same time on 110 policies was $255,100 00. Total amount of losses paid to February 1st, 1862, $2,753,901 77; of dividends paid to same date, $1,959,079 00; of deaths since the organization of the Company, 1269; of policies issued during the year, 1156; of policies in force, 10,433. Dividends are declared annually, and paid during the life of the insured. The dividend for 1862 is fifty per cent. The above statement of this Company gives gratifying assurance of its entire soundness and reliability.

The Niger (Africa) Exploring Expedition.—Dr. Wm. Durant, medical officer of this expedition, states that the further he progressed inland the less virulent became the climatic diseases; that the native tribes at the confluence of that famous stream with the Tchadda, are superior to most of the African nations in mental and physical qualities.

Singular Cause of Death.—It is stated that Captain Slaymaker, of the Iowa Second, and formerly of York County, Pa., came to his death at the battle of Fort Donelson in a singular manner. A bullet struck his pocket-knife in his left pocket, shivered it to pieces, and drove the blade into his body, so that it and not the bullet severed the artery, the rupture of which caused his death. Pieces of the knife were found in his wallet.

A Touching Picture.—The following picture is so exquisitely touching, and furnishes such a beautiful instance of the tender sympathies of woman for the suffering in this unnatural war, that we cannot refrain from copying it:—

"A little drummer-boy was evidently dying. A lady spoke to him, asking him if he wanted anything. 'No,' was the feeble answer, but with a wishful look at the kind face over him, he said his mother had sent him from Mississippi to fight and defend her home. He did not regret it, but wanted to see his mother. He gave his name and mother's address, still looking wishfully, as if there was something on his mind. At last he said: 'My mother is a good woman, too. She would treat a poor sick prisoner kindly, and if she were with your son, she would kiss him.' 'I will kiss you, my dear boy, for your mother,' said she. She kissed him, and in a few minutes he died.

"God bless the women for the good work they are doing. It makes one think better of our human nature to hear of the work they are doing throughout the East, in furnishing supplies, and in the West by their presence and aid."

Physiology of the Senses.—Some interesting lectures on the "Physiology of the Senses" have been delivering, at the Royal Institution, by Mr. Marshall, of University College Hospital. At one of the last, a gas flame inclosed in a glass tube was made to give out a musical tone when a note of the same pitch was produced by the voice of the lecturer's assistant.

Dr. Burrows, Superintendent of the Alabama Penitentiary at Wetumpka, has been murdered by a convict.

Dr. W. S. Bell, Chief of the Medical Department of the Confederate Army of the Mississippi, died at Memphis on the 15th ult.

The greatest distance to which sound has been carried in the air is 345 miles. This was when the awful explosion of the volcano at St. Vincent was heard at Demarara.

Princely Munificence.—George Peabody, of London, has placed the sum of one hundred and fifty thousand pounds at the disposal of Mr. Adams, the American minister, Lord Stanley, Sir Emerson Tenent, and Messrs. Lampson and Morgan as trustees, for the purpose of ameliorating the condition of the poor of London.

Medicinal Property of Corn "Silk."—The *Botanische Zeitung* (Botanical Journal) of Germany says: "According to Landerer, in Greece the silk or pistils of Indian-corn are claimed to have peculiar healing power, especially for gravel and other urinary diseases. A strong decoction of tea is made of the silk steeped in water, which is given to the patients, and hundreds who have used it acknowledge its excellent effects."

Medical Legislation in Congress.—The bill just passed by the House contains the following particulars: It adds to the present medical corps ten surgeons and ten assistant-surgeons, to be promoted and appointed under the existing laws, and twenty medical cadets and as many hospital stewards as the Surgeon-General may consider necessary; the Medical Inspector-General, under the direction of the Surgeon-General, to have

supervision of all that relates to the sanitary condition of the army. There are to be eight medical inspectors and medical purveyors, to be charged, under the direction of the Surgeon-General, with the selection and purchase of all medical supplies, etc., and surgeons from the volunteer service are to be incorporated with the regular staff as selected.

The Law of Development.—Professor Huxley delivered a lecture last week on the fossil remains of "Man," Sir H. Holland in the Chair. The difference between the highest and lowest races of men, the lecturer stated, is greater than between the lowest man and highest quadrumanos animals. Man is contemporaneous with the mammoth and rhinoceros.—*Dub. Med. Press.*

Library of Dr. John W. Francis.—The catalogue is now being made of the large and extensive library of this distinguished man and physician, deceased, with a view to its sale. Students and amateurs in every walk of science will find in this event a rare opportunity to enrich their shelves.

There are eighty-two students in attendance at the present session of the University of Vermont Medical College.

Medical Book Making. — Maisonneuve, the eminent French surgeon, once remarked to his class, "that the majority of medical books are written before their authors have had any experience, and after a reputation is gained, there is no time for anything but practice."—*Amer. Med. Monthly.*

In 1754, Lacordiére wrote of the small-pox, "that it destroyed, mutilated, and disfigured one-fourth of the human race."

Sydenham says, in his dedication to the King of Great Britain: "Sire, a good physician is greater than thou art—*proximus est Deo.*"

The hospitals of London contain 3700 beds; those of Paris contain 7000.

Life in the Glacial Seas.—From the investigations of the scientific expedition dispatched by the Swedish Government, to investigate the physical geography of Spitzbergen, it appears that animal life is abundant in these glacial regions, at the great depth of 1250 fathoms.—*Med. News.*

A Gigantic Saurian.—The discovery of the fossil bones of a new and gigantic saurian, in a cutting recently made for a railway line near Poligny, has just been announced by M. Bertherand. The animal must have been between 90 and 120 feet in length, and must have existed toward the end of the Triassic period.—*Ibid.*

☞ We would call the attention of our readers to the advertisement of a "Medical Situation for sale." It is a rare opportunity for an active, intelligent man to obtain a large, paying practice, with very little competition.

MARRIED.

Button—White.—In Dexterville, N. Y., March 27th, J. W. Button, M.D., and Miss Lucretia F. White, all of Dexterville, N. Y.

Sawyer—Gookins.—In Elkhorn, Wis., Feburary 19th, 1862, by Rev. J. B. L. Soule, Dr. S. J. Sawyer, of Raymond, Racine County, Wis., formerly House Surgeon, 2d Surgical Division, Bellevue Hospital, New York City, to Miss Helen A. Gookins, of Belvidere, Ill.

Yarrow—Dryburgh.—In this city, on the 10th inst., at Calvary Presbyterian Church, by the Rev. John Jenkins, D.D., H. C. Yarrow, M.D., to Anna P., daughter of Andrew Dryburgh.

Young—Gormly.—On March 11th, 1862, by Rev. D. A. Cunningham, P. B. Young, M.D., of Freedom, Pa., to Miss S. M. Gormly, of Beaver, Pa.

DIED.

Phillips.—Josephine E. Phillips, daughter of Dr. J. H. Phillips, died at her father's residence in Pennington, N. J., March 4, aged 21.

Vital Statistics.

Of Philadelphia, for the week ending April 5, 1862.

Deaths—Males, 167; females, 142; boys, 78; girls, 79. Total, 309. Adults, 142; children, 167. Under two years of age, 93. Natives, 234; Foreign, 53. People of color, 12.

Among the causes of death, we notice—Apoplexy, 6; convulsions, 23; croup, 4; cholera infantum, 0; cholera morbus, 1; consumption, 31; diphtheria, 5; diarrhœa and dysentery, 4; dropsy of head, 4; debility, 13; scarlet fever, 13; typhus and typhoid fever, 6; inflammation of brain, 11; of bowels, 2; of lungs, 26; bronchitis, 3; congestion of brain, 2; of lungs, 1; erysipelas, 3; hooping-cough, 0; marasmus, 11; small-pox, 10.

For week ending April 6, 1861.....302
" " April 5, 1862.....309

Population of Philadelphia, by the census of 1860, 568,034. Mortality, 1 in 1838.

Of New York, for the week ending April 7, 1862.

Deaths—Males, 270; females, 185; boys, 165; girls, 104. Total, 455. Adults, 186; children, 269. Under two years of age, 172. Natives, 310; Foreign, 139; Colored, 7.

Among the causes of death, we notice—Apoplexy, 8; infantile convulsions, 45; croup, 8; diphtheria, 13; scarlet fever, 39; typhus and typhoid fevers, 10; cholera infantum, 2; cholera morbus, 1; consumption, 69; small-pox, 7; dropsy of head, 22; infantile marasmus, 16; diarrhœa and dysentery, 7; inflammation of brain, 7; of bowels, 14; of lungs, 31; bronchitis, 7; congestion of brain, 7; of lungs, 4; erysipelas, 3; hooping-cough, 0; measles, 5: 231 deaths occurred from acute disease, and 35 from violent causes.

For week ending April 8, 1861.....434
" " April 7, 1862.....455

Population of New York, by the census of 1860, 814,277. Mortality, 1 in 1789·5.

Of Boston, for the week ending Mar. 29, 1862.

Deaths—Males, 35; females, 28. Total, 63. Natives, 48; Foreign, 13.

Among the causes of death, we notice—Phthisis, 10; cholera infantum, 0; croup, 2; scarlet fever, 7; pneumonia, 5; variola, 0; dysentery, 0; typhus fever, 2; diphtheria, 0; hooping-cough, 2; convulsions, 2.

Population of Boston, 1860, 177,902. Average corrected to increased population, 81·28.

Answers to Correspondents.

Dr. S. R., Pa.—The probability is that the regiments are now supplied with surgeons and assistant-surgeons. The governor of the State is the proper person to apply to for information. Vacancies will undoubtedly occur, but there are probably candidates, who have already passed an examination, ready to fill them. The assistance of a friend, or any method of showing your ability to fill the position, would materially aid you.